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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,778	02/04/2004	Michael Donovan Mitchell	8493D	5167

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EXAMINER	
CLEVELAND, MICHAEL B	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,778	MITCHELL ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

1. The terms "coating add-on" and "carbon add-on" at the differing stages of claims 7-9 have been interpreted in accordance with the specification at pp. 10-12.

2. The units on the pore volumes of claim 13 "mL/g" have been interpreted in accordance with the specification on p. 13 to mean "mL/g carbon in the activated coating".

Specification

3. The disclosure is objected to because of the following informalities: The status of the parent application (now U.S. Patent 6,733,827) should be updated in the first sentence added by amendment.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for filter materials which are formed merely partially from complex forms of filter particles.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2 and 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Economy et al. (U.S. Patent 5,834,114, hereafter '114) in view of Buzzelli (U.S. Patent 3,650,834, hereafter '834).

Claim 1 requires "A process for forming a filter material comprising the steps of:

a) coating a filter particle with a coating comprising a lignosulfonate;

b) carbonizing said coating; and

c) activating said coating."

Economy '114 teaches a method for forming a filter material (col. 1, lines 11-13) comprising the steps of:

a) coating a fiber with a carbonizable precursor coating (col. 2, lines 49-55). (The fiber must be a filter particle because a filter is produced (col. 1, lines 11-13). Furthermore, the fiber may be a glass fiber (col. 3, lines 23-26), which applicant states is a filter particle in claim 4.);

b) carbonizing said coating (col. 2, lines 53-54); and

c) activating said coating (col. 2, lines 54-55).

Economy '114 does not teach that the carbonizable precursor is a lignosulfonate. However, '114 is open to the use of other materials that will produce carbonizable coatings (col. 3, lines 8-15). Buzzelli '834 teaches the formation of an activated carbon electrode, which is formed by charring (i.e., carbonizing) and activating a lignosulfonate (col. 1, line 66-col. 2, line 16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the lignosulfonate of Buzzelli '834 as the carbon precursor in

place of the phenolic resin of Economy '114 with a reasonable expectation of success and with the expectation of similar results because Economy '114 is open to the use of other activated carbon precursors and because Buzzelli '834 recognizes lignosulfonates as operable carbon precursors.

Claim 2: Buzzelli '834 teaches that the lignosulfonate is sodium lignosulfonate (col. 2, lines 11-13).

Claim 4: Economy '114 teaches that the filter particle may be a glass fiber (col. 3, lines 23-27).

Claim 5: Economy '114 teaches that the filter particles may be woven fabrics (col. 3, lines 23-27; Example 1: col. 5, lines 1-14).

Claim 6: Economy '114 teaches drying the coating when applied as a solution (col. 3, lines 32-35; Example 1: col. 5, lines 9-10).

Claims 7-8: Economy '114 teaches that the cured (i.e., carbonized; see col. 3, lines 35-38) carbon add-on is 22-35% (Table I). Although Economy '114 does not appear to explicitly teach values of the coating add-on before carbonization, col. 3, lines 35-38 suggest that the amount of coating that is volatilized during the carbonization should be a minimum. Thus, Economy '114 suggests that the coating add-on before carbonization should be approximately the same as the carbon add-on in the carbonized coating.

Claim 9: In Example II, Economy '114 teaches the use of 0.6-0.9 g of substrate material (col. 5, lines 63-67). The weight of the activated coating may be determined from the information in Table II (original resin weight-weight loss), and ranges from 0.081-0.133 g. Thus, the examples necessarily teach that the coating add-on in the activated coatings of Example II are between 8 and 19%.

Claim 10: Buzzelli '834 teaches charring the lignosulfonate below about 600 °C (col. 2, lines 1-2). The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

Claim 11: Economy '114 suggests activation temperatures of 600-800 °C (Example II).

Claim 12: Economy '114 teaches BET surface areas of 710-1245 m^2/g (Table III).

9. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Economy '114 in view of Buzzelli '834, as applied to claim 1, above, and further in view of Buelow et al. (U.S. Patent 6,006,797, hereafter '797).

'114 and '834 are discussed above, but do not explicitly teach that the sum of mesopores and macropores specific volumes is between 0.2-2.2 mL/g or a volume ratio of (mesopores + macropore)/micropore of between 0.3 and 3.

However, '114 teaches that the properties of the activated-carbon coated fibers may be tailored to adsorb a wide variety of contaminants (col. 2, lines 28-30) and that the pores of desired size may be obtained (col. 4, lines 18-25).

'797 teaches the formation of activated carbon compositions from carbonizable precursors, wherein the compositions are designed to adsorb acetylene (col. 7, lines 19-67). Example 5 teaches that the adsorption of acetylene may be made reversible by using activated carbon compositions with a specific micropore volume of 0.6 mL/g, a specific mesopore volume of 0.9 mL/g, and a specific macropore volume of 0.15 mL/g (Example 5: col. 10, lines 62-68). (Note: A cubic centimeter is equivalent to a milliliter.) Thus, '797 teaches that the sum of mesopores and macropores specific volumes is 1.05 mL/g and the volume ratio of (mesopores + macropore)/micropore is 1.75. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '114 and '834 to have created an activated carbon with a sum of mesopore and macropore specific volumes of 1.05 mL/g and a volume ratio of (mesopores + macropore)/micropore of 1.75 because '114 teaches that the properties of the activated carbon film may be modified for the adsorption of different chemical species and because '797 teaches that such values are specifically useful in the adsorption of acetylene.

Terminal Disclaimer

10. The terminal disclaimer does not comply with 37 CFR 1.321(b) and/or (c) because:

An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-2 and 4-14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,733,827. Although the conflicting claims are not identical, they are not patentably distinct from each other because current claim 1 requires all of the steps of patented claim 1. Therefore, it would have been obvious to one of ordinary skill in the art, practicing the method of patented claim 1, to have performed the method of current claim 1 because it would have been necessary to have done so. Present claims 2 and 4-14 recite the features of patented claims 2-13.

Response to Arguments

13. Applicant's arguments filed 9/16/2005 have been fully considered but they are not persuasive.

Applicant's amendment overcomes the rejection under 35 USC 112, 2nd paragraph, but introduces a new issue under 35 USC 112, 1st paragraph.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Thus, Applicant's argument that

Buzzelli does not suggest using its method to coat filter particles is unconvincing because Economy does.

Applicant argues that Buzzelli does not teach a benefit for coating a filter particle. The argument is unconvincing because the selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). The rejection is very simple: Economy teaches applying an activated carbon coating to filter particles by decomposing a carbbon precursor and is open to precursors other than those listed. Buzzelli teaches that lignosulfonates are suitable as decomposbale precursors to form activated carbon coatings. The suitability of the precursor of Buzzelli to form the desired coating of Economy would have motivated its use.

In response to applicant's argument that Buzzelli is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Buzzelli is reasonably pertinent to the particular problem with which applicant was concerned, that is, the carbonization of carbonizable materials. Further, see Kovach '277 and Metcalfe '947, cited with the prior action.

Applicant's arguments regarding unexpected results are not commensurate in scope with the claims, which do not require particular mesopore and micropore volumes. They are further unconvincing because they are unsupported by a showing of evidence that the mesopore and micropore volumes were unexpected. To the contrary, Buelow demonstrates that the ranges are not unexpected.

The rejection of claim 3 under 35 USC 101 is withdrawn because Applicant has canceled the claim.

Applicant argues that the obviousness-type double patenting rejections should be withdrawn. The argument is unconvincing because an attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gadkaree (U.S. Patent 5,487,917), Gadkaree (U.S. Patent 5,597,617), and Hickman (U.S. Patent 6,372,289) are cited for their teachings regarding coating substrates by applying carbon precursors, carbonizing, and activating the carbon coatings.

Kovach (U.S. Patent 3,864,277) and Metcalfe, III et al. (U.S. Patent 3,811,947) are cited for their teachings regarding forming activated carbon by carbonizing lignosulfonates and then activating the carbon.

Peng et al. (U.S. Patent 6,024,899) and Tolles et al. (U.S. Patent 5,204,310) are cited of interest for their teachings regarding pore size distributions in activated carbon coatings.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Cleveland
Primary Examiner
Art Unit 1762

10/20/2005